

WHAT IS CLAIMED IS:

1           1.     A multiple bandwidth antenna assembly comprising:  
2                     a helical radiator having at least a first helical pitch and a second  
3 helical pitch;  
4                     a core plug having a first axial piece and a second axial piece that  
5 abut one another; and  
6                     a first recessed pattern configured on said first axial piece to engage  
7 at least said first helical pitch and a second recessed pattern configured on said  
8 second axial piece to engage at least said second helical pitch.

1           2.     The multiple bandwidth antenna assembly of claim 1 wherein said  
2 first axial piece and said second axial piece are configured to couple with one  
3 another.

1           3.     The multiple bandwidth antenna assembly of claim 1 wherein said  
2 first axial piece and said second axial piece threadedly engage one another.

1           4.     The multiple bandwidth antenna assembly of claim 1 wherein said  
2 first axial piece and said second axial piece engage one another in a snap-fit  
3 engagement.

1           5.     The multiple bandwidth antenna assembly of claim 1 wherein medial  
2 ends of each of said first and second axial pieces are configured to matingly  
3 engage one another.

1           6.     The multiple bandwidth antenna assembly of claim 1 wherein medial  
2 ends of each of said first and second axial pieces are configured to frictionally  
3 engage one another.

1           7.     The multiple bandwidth antenna assembly of claim 1 wherein medial  
2 ends of each of said first and said second axial pieces are configured to be in  
3 abutment with one another.

1           8.     The multiple bandwidth antenna assembly of claim 1 wherein medial  
2 ends of each of said first axial piece and said second axial piece are held in  
3 engagement by adhesion.

1           9.     The multiple bandwidth antenna assembly of claim 1 wherein said  
2 first helical pitch creates resonance at a frequency of 1575MHz and a combination  
3 of said first helical pitch and said second helical pitch creates resonance between  
4 806 and 941 MHz.

1           10.    The multiple bandwidth antenna assembly of claim 1 wherein said  
2 second axial piece is made of a relatively more elastic material than said first axial  
3 piece.

1           11.    The multiple bandwidth antenna assembly of claim 10 wherein said  
2   second axial piece comprises Lexan 141 and said first axial piece comprises Texin  
3   255.

1           12.    The multiple bandwidth antenna assembly of claim 1 wherein one of  
2   said first and second recessed patterns includes a second helical pitch.

1           13.    The multiple bandwidth antenna assembly of claim 12 wherein said  
2   second recessed pattern is configured to engage both of said first and said second  
3   helical pitches.

1           14.    The multiple bandwidth antenna assembly of claim 1 wherein said  
2   first and second recessed patterns each include a second helical pitch.

1           15.    The multiple bandwidth antenna assembly of claim 14 wherein said  
2   helical radiator is configured to engage said first and second helical pitches and  
3   each of said first and second recessed patterns.

1           16.    A multiple bandwidth antenna assembly comprising:  
2                    core means having at least two pieces;  
3                    coupling means having a predetermined helical pitch for removably  
4   coupling said at least two pieces to one another;  
5                    engagement means disposed on said at least two pieces and  
6   configured to matingly engage said coupling means.

1           17.    The multiple bandwidth antenna assembly of claim 16 wherein said  
2   coupling means comprises a multiple pitch helical radiator.

1           18.    The multiple bandwidth antenna assembly of claim 16 wherein said  
2 engagement means comprises at least two recessed patterns.

1           19.    The multiple bandwidth antenna assembly of claim 18 wherein said  
2 at least two recessed patterns each include at least one helical pitch.

1           20.    The multiple bandwidth antenna assembly of claim 18 wherein one  
2 of said at least two recessed patterns includes a first and a second helical pitch.

1           21.    The multiple bandwidth antenna assembly of claim 19 wherein one  
2 of said at least two recessed patterns includes a helical pitch of 1.79 mm, and a  
3 second of said at least two recessed patterns includes a helical pitch of 5.40 mm.

1           22.    The multiple bandwidth antenna assembly of claim 20 wherein one  
2 of said at least two recessed patterns includes a first helical pitch of 1.79 mm and a  
3 second helical pitch of 2.43 mm, and a second of said at least two recessed  
4 patterns includes a helical pitch of 5.40 mm.

1           23.    The multiple bandwidth antenna assembly of claim 16 wherein said  
2 core means comprises a plurality of pieces.

1           24.    A method for assembling a multiple bandwidth antenna comprising:  
2                    providing a helical radiator having at least one predetermined helical  
3 pitch;  
4                    forming a first core plug piece configured to engage a first portion of  
5 said helical radiator;  
6                    forming a second core plug piece configured to engage a second  
7 portion of said helical radiator;

8                    inserting said first core plug piece into said first portion and said  
9 second core plug piece into said second portion; and  
10                   coupling said first core plug piece to said second core plug piece.

1            25.    The method of claim 24 wherein said step of coupling said first core  
2 plug piece to said second core plug piece follows said step of inserting said first  
3 core plug piece into said first helical pitch.

1            26.    The method of claim 24 wherein said step of coupling said first core  
2 plug piece to said second core plug piece occurs while said second core plug piece  
3 is inserted into said second portion of said helical radiator.

1            27.    The method of claim 24 wherein said step of providing a helical  
2 radiator comprises providing a multiple pitch helical radiator configured to engage  
3 a first core plug piece having a helical pitch of 1.79 mm and a second core plug  
4 piece having a helical pitch of 5.40 mm.

1            28.    The method of claim 24 wherein said step of inserting said first core  
2 plug piece into said first helical pitch and said second core plug piece into said  
3 second helical pitch includes inserting a leading end of said helical radiator into a  
4 medial end of said first core piece.

1            29.    The method of claim 28 wherein a lagging end of said helical  
2 radiator is subsequently inserted into a medial end of said second core piece.  
3

1            30.    A method for assembling a multiple bandwidth antenna comprising:  
2                   preforming a helical radiator having at least one predetermined  
3 pitch;

4 assembling a core plug portion into a first pitch of said helical  
5 radiator; and  
6 assembling a second core plug portion into a second pitch of said  
7 helical radiator.

1 31. A multiple bandwidth antenna assembly comprising:  
2 core means having at least two pieces;  
3 a helical radiator having at least one predetermined helical pitch for  
4 removably coupling said at least two pieces to one another;  
5 engagement means disposed on said at least two pieces and  
6 configured to matingly engage said helical radiator.